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Manufacturing The Future of Communications™

InterDigital®

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June 28, 1993

Ms. Donna R. Searcy
Federal Communications Commission
1919 M Street, N.W. - Room 222
Washington, DC 20554

Re: Comments of InterDigital Communications Corporation in PR Docket 93-61

Dear Madam Secretary,

Transmitted herewith are an original and four copies of the comments of InterDigital Communications Corporation in the above referenced proceeding.

If you have any questions with regard to this matter, please do not hesitate to contact me.

Sincerely,

Donald L. Schilling
Executive Vice President

DLS:dd

Before the

FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Amendment of Part 90 of the	)	PR Docket NO. 93-61
Commission's Rules to Adopt	)	RM-8013
Regulations for Automatic	)	
Vehicle Monitoring Systems	)	

Ultraphone, is based on digital Time Division Multiple Access ("TDMA") techniques which allow multiple users to share simultaneously a single radio channel. This same TDMA technology approach has also been selected by the cellular industry for deployment as the next generation of cellular radio.

In addition to TDMA technology, InterDigital is a leader in the development of CDMA spread spectrum technology. Through its acquisition of SCS Mobilcomm, InterDigital has merged the pioneering CDMA technology accomplishments of SCS with the mature TDMA technology of IMM to form a broadbased wireless technology company positioned to provide a wide array of technology solutions for the wireless industry.

InterDigital is developing a wireless PBX using spread spectrum technology operating in the 902-928 MHz band and is therefore vitally interested in the changes to the rules proposed in this proceeding. Current FCC rules permit unlicensed operation in this band with up to 1 watt (4 watts EIRP) if spread spectrum technology is used.[2] InterDigital's wireless PBX takes full advantage of these rules.

increased use of unlicensed Part 15 equipment. This conflict will result in a high interference environment for both AVM systems and Part 15 equipment.

II. DISCUSSION

In this proceeding the Commission proposes to change the

Teletrac ("Teletrac") in their petition [5] said:

> "Each system can serve up to sixteen million RLUs (radio location units) and handle up to six million location requests per day in a specific geographic area -- or roughly 4,000 location requests per minute."[6]

Such a large increase in traffic will increase the overall interference levels to unacceptable levels. Of major concern also, is the proposal that allows, in addition to location requests, the transmission of a broad range of "status and instructional messages" which will have the effect of creating a high volume, almost unlimited messaging service in the same band with unlicensed devices.

Overall, this new expanded Location and Monitoring Service (LMS) will cause an enormous interference problem between Part 15 equipment and LMS operations and an unmanageable enforcement problem for the Commission.

Currently, AVM's operate, under interim rules, a limited monitoring service for vehicles. A recent waiver [7] to allow AVM systems to experiment with a broad location and messaging service is clearly a mistake which will cause, once full LMS deployment is completed, an unacceptable level of interference to users of Part 15 equipment as well as LMS subscribers.

AVM systems operate, currently, within the 900 MHz band

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[5] North American Teletrac and Location Technologies, Inc., Petition for Rulemaking, RM-8013 (filed May 28, 1992).

[6] Id at 7.

[7] NPRM at 2.

under interim rules established in 1974.[8] This band is shared with many diverse applications. Over the years, a sharing balance has developed among the various Part 15 users of this band and between Part 15 users and AVM systems. Literally, hundreds of Part 15 applications co-exist interference-free with todays AVM systems. This benign co-existence is made possible through the use, by Part 15 manufacturers, of advanced technology and carefully controlled power limits and by the narrow scope of AVM systems.

It is this balance between low-powered advanced technology systems in Part 15 and the higher powered AVM systems which the expansion of AVM use will upset. In addition to expanding the scope and volume of traffic, LMS will deploy, in the Teletrac configuration, an extremely fragile technology.[9] This technology will be susceptible to interference from other users of this band and specifically susceptible to the high power (4 watts EIRP) Part 15 devices.

The interference situation is made worse by the expansion of the permissible use of this band to include object and personal location and messaging. The nomadic nature of the location and messaging devices coupled with the increased deployment of an

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[8]. Report and Order, Docket No. 18302, 30 RR 2d 1665 (1974).

[9] PacTel Petition, Appendix #2 details interference results from a hypothetical interferer to its Chicago system. Based on this data, a Part 15 device, operating within the FCC Part 15.247 rules, could interfere with the Teletrac system from as far away as 8 miles.

infrastructure of transceivers to support the expansion will will cause major interference problems for all users of this band. As a result of the extensive changes proposed in this rulemaking, LMS and existing Part 15 equipment will both experience unacceptable interference levels.

This problem will not go away, and it can only get worse. The Commission should address the interference problem now in the rulemaking stage when changes can be made. Later, the choices will become much more difficult (if not impossible) to implement.

THE COMMISSION SHOULD ABANDON THE PROPOSED EXPANSION OF THE 900 MHz BAND AND REQUIRE A NEGOTIATED INDUSTRY SOLUTION TO SHARED USE.

The explosion of 900 MHz consumer products in the next several years will create a challenge to the existing Part 15 products to continue to operate interference-free. Action by the Commission to expand the use of this band for a licensed location service will turn a difficult situation into an impossible situation. The Commission must act now to bring all industry segments together to develop spectrum sharing solutions to use of this band. There is no other alternative to industry negotiated

action.

The rapid introduction of relatively high-powered consumer devices in the 900 MHz band will strain the relationship between licensed and unlicensed operation. In this regard, it is foreseeable that the high-powered Part 15 digital cordless phone industry will experience the same (or perhaps greater) rapid market acceptance that was experienced by the low-powered cordless phones. In that event, within the next few years there will be millions of Part 15 cordless phones operating in the 900 MHz band. Moreover, the nomadic nature of these consumer devices precludes action by the Commission to enforce any priority of use between licensed and unlicensed use. Accordingly, the Commission can only make the 900 MHz situation worse by encouraging the expansion of the AVM service beyond the existing AVM rules.

The Commission could however, avert this interference problem by encouraging the formation of an industry technical committee to explore technical solutions to the interference problems. Such a committee, operating under the auspices of the FCC's Office of Engineering and Technology, could examine the full range of technical issues encompassed in rules governing AVMs and Part 15 and report out a consensus set of negotiated rules which could govern the shared use of the 902-928 MHz band.

Commission action is needed to bring industry together to solve the mutual interference issues and to begin cooperative sharing negotiations. Such negotiations could prevent a major confrontation later over unacceptable levels of interference.

II. CONCLUSION

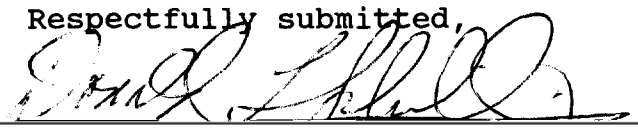
Part 15 technology developers never had any warning nor could they reasonably foresee that the Commission, eight years after encouraging Part 15 development, would propose to greatly expand the use of this band which will cause severe interference problems between commercial and consumer Part 15 products and LMS systems.

Accordingly, Part 15 developers built equipment to take full advantage of the liberal technical rules governing Part 15. Likewise, AVM operators developed systems with little or no concern for the existence of unlicensed Part 15 equipment. The growth of the Part 15 industry and the maturing of the AVM industry has brought them into conflict.

The Commission must act now to encourage the Part 15 and AVM industry sectors to work together to develop solutions to sharing this band. A good first step would be to abandon the proposal to expand the current interim rules for AVM. Next, the Commission should encourage both industries to work together to develop consensus on technical sharing rules which would allow AVM service and Part 15 uses to operate interference-free in the 902- 928 MHz band.

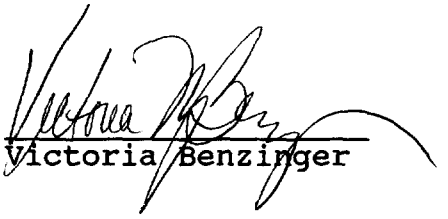
The potential interference problem can and must be resolved by the Part 15 and AVM industry participants involved prior to Commission action on final rules in this proceeding. To do otherwise would invite chaos in both industries.

Respectfully submitted,



CERTIFICATE OF SERVICE

I, Victoria Benzinger, hereby certify that a copy of the foregoing Comments of InterDigital Communications Corp. was mailed first-class United States mail, postage prepaid, this 28th day of June, 1993 to the parties listed on the attached service list.



Victoria Benzinger